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Statistical reconstruction algorithm based on the method of moments in positronium imaging

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Positronium imaging (PI) is the new technique, complementary to the positron emission tomography (PET), that aims to
reconstruct 3D images of positronium lifetime in humans and animals. The existing PI algorithms are computationally expensive, require long scans and struggle with poor spatial resolution due to lower sensitivity caused by a need for an additional prompt gamma.

In this talk, we shall review the SIMPLE-Moment (Statistical IMage reconstruction of Positron annihilation LifetimE by Moment weighting) – a novel solution in PI that does not use curve-fitting and exhibit performance comparable to conventional PET reconstruction. In addition, a test result for our own data will be revealed.

Presenter(s) :   SHOPA, Roman (National Centre for Nuclear Research)